Title: A 2.45 GHz wearable antenna using conductive graphene and polymer substrate

Author/Authors: M. M. Mansor, Sharul Kamal Abdul Rahim, U. Hashim

Abstract: This paper presented the integration of conductive graphene sheet on flexible polydimethysiloxane (PDMS) substrate layer at a 2.45 GHz Industrial, Scientific and Medical (ISM) band. Significant gain improvement is observed when integrating graphene as an antenna patch and ground, as compared to a reference antenna made from copper, a conventional material for antenna development. The resonance frequency is slightly shifted to a lower frequency when the antenna is bent in x- and y-directions with minimum bending radius. The effect of human body on antenna performances is characterized by attaches the proposed antenna on human Voxel model. The characterization results shown a good and comparable antenna performance is achieved by integrating conductive graphene as flexible antenna.